

**Amendments to the Drawings:**

The attached sheets of drawings include changes to FIGs. 2A, 2B, 4A, and 4B. In particular, boxes are now used to mark areas in the figures that were previously shaded in the original figures. These sheets replace the original sheets containing FIGs. 2A, 2B, 4A, and 4B.

## **Remarks**

### **A. Status of the Claims**

Claims 1-16 were pending at the time of the Office Action. Claim 1 has been canceled. Claim 2 has been amended to independent format. Claims 3-12 have been amended to depend from claim 2. In addition, claims 2-6 and 8-12 have been amended to replace “and” with “or.” Support for this amendment may be found in the specification at, for example, Table 1 on pages 14-16, which identifies each sequence along with its description and GenBank No. Claims 14 and 16 also have been amended to recite specific sequences. Thus, claims 2-16 are now pending.

### **B. Priority**

The Action notes that the application appears to claim subject matter disclosed in prior applications, and then generally discusses referencing prior applications in the specification of a subsequent application (Action, p. 2-3). Applicant notes that the present specification was amended to include a priority statement by a Preliminary Amendment filed on June 17, 2005. This statement, however, contained a typographical error in that the last digit of PCT/US2003/041182 was omitted. This typographical error has been corrected by the current amendment to the specification.

### **C. Objections to the Specification**

The Action objects to the form of the citations at numerous locations in the specification. In particular, the Action asserts that in addition to the author name and year of publication, the citations should also include title, journal, volume issue and pages. Applicant notes that this information is provided at the end of the specification under the section entitled “References.” This is an appropriate format for citing references. Applicant, therefore, requests the withdrawal of these objections.

The Action indicates that “*Borreliae*” at page 2, line 27, is misspelled. This objection is confusing because the Examiner’s suggested spelling is also “*Borreliae*.” Furthermore, the currently recited “*Borreliae*” is the correct spelling in the context of page 2, line 27, where the term is being used in the plural form. Applicant, therefore, requests the withdrawal of this objection.

The typographical error at page 51, line 7, has been corrected. In addition, the hyperlinks at page 71, line 5, and page 75, line 17, have been removed. Applicant, therefore, requests the withdrawal of these objections.

#### **D. Objections to the Drawings**

The Action objects to FIGs. 2A, 2B, 4A, and 4B because they contain sequences, but do not contain sequence identifiers in either the figure or the Brief Description of the Drawings. The specification has been amended to add the sequence identifiers to the Brief Description of the Drawings. In addition, FIGs. 2A, 2B, 4A, and 4B have been amended to removing the use of shading. Boxes are now used to indicate areas that were previously shaded.

#### **E. The Claims Are Novel Over the Cited Art**

The Action raises three anticipation rejections: (1) claims 1 and 14 are allegedly anticipated by Wang *et al.* (2000); (2) claim 1 is allegedly anticipated by Wang *et al.* (2001); and (3) claims 1 and 14-16 are allegedly anticipated by Kawabata *et al.* Claim 1 has been canceled, rendering the rejection of that claim moot. Claim 2, which was not rejected as being anticipated, has been amended to independent format. In addition, claims 14 and 16 have been amended to include the description of the nucleic acid from claim 2. Accordingly, all of the anticipation rejections are overcome. Applicant, therefore, respectfully requests the withdrawal of these rejections.

#### **F. The Claims Are Definite**

Claim 13 is rejected as being indefinite under 35 U.S.C. § 112, second paragraph, on grounds that “it is unclear what function, if any, is designated by such amplified nucleic acid sequence.” Claims 2-12 are also rejected as being indefinite under 35 U.S.C. § 112, second paragraph, because they depend from claim 1, which is rejected (albeit not for indefiniteness). Applicant traverses.

As an initial point, neither rejection is proper under 35 U.S.C. § 112, second paragraph. A proper evaluation of a claim under the second paragraph of 35 U.S.C. § 112 requires that the claim be read in light of the specification as interpreted by one of ordinary skill in the art. *North Am. Vaccine, Inc. v. American Cyanamid Co.*, 7 F.3d 1571, 1579, 28 USPQ 2d 1333, 1339 (Fed. Cir. 1993). The Action does not contend that someone of ordinary skill in the art would not understand the meaning of claims 2-13. Accordingly, the Action has not established a proper basis for these rejections.

With respect to claim 13, the Action only asserts that it is unclear what the function of the claimed nucleic acid is. As mentioned above, this is not a basis for rejecting a claim under 35 U.S.C. § 112, second paragraph. Regardless, a “function” for the nucleic acid would be readily apparent to someone of ordinary skill in the art in light of the specification. For example, the specification discloses that there is a commercial demand for vaccines and diagnostic kits for Lyme disease, both for human and veterinary use (Specification, p. 3, ln. 23-25). A nucleic acid as recited in claim 13 could be used diagnostically and/or in vaccine development.

With respect to claims 2-12, the Action rejects these claims solely because they depend from claim 1. Claim 1, however, is not rejected as being indefinite. As mentioned above, this is not a basis for rejecting a claim under 35 U.S.C. § 112, second paragraph. Nevertheless, this rejection is moot in view of the cancellation of claim 1.

**G. Conclusion**

Applicant believes this to be a complete response to the Office Action dated June 16, 2009. The Examiner is invited to contact the undersigned attorney at (512) 536-5654 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,



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